

THAT WHICH IS CLAIMED IS:

1. Device for automatically controlling a voltage (V_{cc}) applied to one of two data conductors (DP, DM) of a USB type serial link cable in a peripheral apparatus (B) connected upstream to another apparatus (A), said peripheral apparatus (B) comprising its own supply voltage source (26) which supplies said applied voltage (V_{cc}) to said data conductor (DP or DM) and being susceptible of receiving on another conductor a supply voltage (V_{BUS}), characterized in that it comprises:

- a detection circuit (30, 60) for detecting a presence or an absence of said supply voltage (V_{BUS}),
- a memory circuit (80) for memorizing a state of presence or absence of said supply voltage (V_{BUS}), and
- a logic control circuit (70) for controlling the supply source producing the voltage (V_{cc}) to set into operation said supply source (26) only in the presence of said supply voltage (V_{BUS}).

2. Device according to claim 1, characterized in that the detection circuit (30, 60) for detecting a presence or absence of the supply voltage (V_{BUS}) supplied by the link cable comprises:

- an electronic device (30) of the Schmitt trigger type, of which an input terminal is connected to the supply terminal of the cable,
- a detection circuit (90) for detecting a rising edge or a falling edge of the signal supplied by the detection circuit (30) and which supplies signals corresponding to the rising edge and to the falling

edge (Vbus-rise and Vbus-fall),

- a counter (94) of the duration over which the rising edge and falling edge signals (Vbus-rise and Vbus-fall) are maintained in their state, and which produces an end of count signal (end-count) when the duration of maintaining in the state is attained,

- a state machine (92) which changes state as a function of the rising edge and falling edge signals (Vbus-rise and Vbus-fall) and of the end of count signal (end-count), and which produces the signals of the state (set-Vbusstat, reset-Vbusstat) of presence and absence of said supply voltage (V_{BUS}) as well as a signal (set-Vbusint) signaling the change of state of signal Vbus.

3. Device according to claim 1 or 2, characterized in that the memory circuit is a latch (80) of a state register (68, SR) of the communications microcontroller (MC).

4. Device according to any one of claims 1 to 3, characterized in that the logic control circuit (70) for controlling the supply source producing the voltage (V_{CC}) comprises:

- an inverter circuit (74) whose input terminal receives the signal of the state of presence or absence of said supply voltage (V_{BUS}), and
- an inverting OR circuit (72) of which one input terminal is connected to the output terminal of the inverter circuit (74) and of which the other input terminal receives a state signal (PDWN = 0) indicating that the peripheral apparatus (B) has its own supply source.

5. Device according to any one of claims 1
15 to 4, characterized in that it further comprises a
circuit for interrupting the microcontroller (MC),
comprising:

- a latch (76) of the interrupt state
register (62, ISR) of the microcontroller (MC) in which
20 is recorded the change of state (Vbusint-ITVBUS) of the
supply terminal (V_{BUS}), and
- a latch (78) of the interrupt mask register
(64, IMR) of the microcontroller (MC) in which is
recorded, by the latter, the state of masking (ITVBUSM)
25 of change of state (ITVBUS), and
- an AND circuit 66 of which one of the two
input terminals receives the signal of change of state
(ITVBUS) and of which the other input terminal receives
the state of masking signal (ITVBUSM),
30 such that the microcontroller (MC) receives an
interrupt request signal (IR) only if there occurred a
change of state (ITVBUS = 1) and if the state signal of
the masking latch has a logic value "1" (ITVBUSM=1).

6. Peripheral apparatus (B) connected to an
apparatus (A) upstream by a USB type serial link cable,
characterized in that it comprises a control device
according to any one of claims 1 to 5.